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# PATENT SPECIFICATION

1,072,562

1,072,562



Inventor: LEONARD HUMPHRY POTTEN.

Date of filing Complete Specification: February 26, 1965.

Application Date: March 13, 1964.

No. 107162/64

Complete Specification Published: June 21, 1967.

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Index at Acceptance:—F4 W8; E2 M (11A, 11EX, 12D3, 12D4, 16).

Int. Cl.:—F 24 b // E05f.

## COMPLETE SPECIFICATION

### DRAWINGS ATTACHED

### Improvements in or relating to Cooking Ovens

#### ERRATUM

SPECIFICATION NO. 1,072,562

Page 1, Heading Application No. for "No. 107162/64." read "No. 10762/64."

THE PATENT OFFICE,  
23rd January, 1968

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in the open position are situated under the oven. In one such last mentioned door construction, the door is hingedly supported at its lower end on a carriage provided with wheels or rollers which engage in tracks extending from the front to the rear at each side of the oven. The door is supported solely by the said carriage with the result that the entire weight of the door as it is swung from the closed to the open position and vice versa is taken by the carriage. This presents a disadvantage in that the carriage, the hinge connection of the door to the carriage, and the tracks with which the carriage engages have to be made of a strength sufficient to withstand the full weight of the door.

A further disadvantage of the known drop-down doors is that it is necessary to swing the door down to its fully open position before the door can slide under the oven and therefore a free space is required in front of the oven which is at least equal to the height of the door.

The aforementioned disadvantages are overcome in the door construction of the

ing movement of the door, the free space required in front of the oven to permit opening and closing of the door is considerably less than in the aforementioned known door constructions.

Conveniently the said additional supporting means is provided by a pivoted link at one or at each side of the oven and connecting the door to the oven structure, and according to a further feature of the invention the said link or links is or are arranged so that when the door is in the closed position the lower end thereof is spaced slightly forwardly of the lower edge of the oven opening thereby to provide an air gap for the ingress of air along the bottom of the opening which assists the heating of the oven and also the cooking of food placed in the oven.

One embodiment of the invention will now be described with reference to the drawings accompanying the Provisional Specification and in which:

Fig. 1 is a side elevation partly in section of a cooking oven incorporating a drop-down door according to the invention, the

[Price 4s. 6d.]

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## COMPLETE SPECIFICATION

### DRAWINGS ATTACHED

#### Improvements in or relating to Cooking Ovens

WE, RADIATION LIMITED, a British Company of Radiation House, North Circular Road, London, N.W.10, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed to be particularly described in and by the following statement:

The present invention relates to cooking ovens and has for an object to provide an improved door construction for a cooking oven.

It has heretofore been proposed to provide cooking ovens with drop-down doors i.e. doors which swing forwardly and downwardly to the open position, and also to provide such drop-down doors which when in the open position are slidable under the oven. In one such last mentioned door construction, the door is hingedly supported at its lower end on a carriage provided with wheels or rollers which engage in tracks extending from the front to the rear at each side of the oven. The door is supported solely by the said carriage with the result that the entire weight of the door as it is swung from the closed to the open position and vice versa is taken by the carriage. This presents a disadvantage in that the carriage, the hinge connection of the door to the carriage, and the tracks with which the carriage engages have to be made of a strength sufficient to withstand the full weight of the door.

A further disadvantage of the known drop-down doors is that it is necessary to swing the door down to its fully open position before the door can slide under the oven and therefore a free space is required in front of the oven which is at least equal to the height of the door.

The aforementioned disadvantages are overcome in the door construction of the [Price 4s. 6d.]

present invention and according to the invention a drop-down door construction for a cooking oven comprises a door frame, means hingedly supporting the lower end of the door frame and slidable rearwardly and forwardly beneath the oven, and additional means supporting the door frame from the oven structure in such manner that opening or closing of the door is effected by concurrent swinging and sliding movement of the door.

In this manner the weight of the door is not wholly taken by the hinge connection at the lower end thereof, a large proportion of the weight being taken by the additional supporting means, and furthermore by reason of the concurrent swinging and sliding movement of the door, the free space required in front of the oven to permit opening and closing of the door is considerably less than in the aforementioned known door constructions.

Conveniently the said additional supporting means is provided by a pivoted link at one or at each side of the oven and connecting the door to the oven structure, and according to a further feature of the invention the said link or links is or are arranged so that when the door is in the closed position the lower end thereof is spaced slightly forwardly of the lower edge of the oven opening thereby to provide an air gap for the ingress of air along the bottom of the opening which assists the heating of the oven and also the cooking of food placed in the oven.

One embodiment of the invention will now be described with reference to the drawings accompanying the Provisional Specification and in which:

Fig. 1 is a side elevation partly in section of a cooking oven incorporating a drop-down door according to the invention, the

door being shown in the closed position, and

Fig. 2 is a similar view of the lower portion of the oven and showing the door in the open position.

5 As shown in the drawings the oven is formed by side walls, one of which is indicated at 1, a floor 2 and rear and top walls (not shown). The oven is open at the front and each side wall is secured at its forward end to a vertical pillar 3. The oven door is indicated generally at 4 and comprises a frame 5 in which is positioned a glass panel 6 held therein by means of suitably positioned brackets 7 secured to the frame 5.

15 The door is pivotally supported at its lower end on slide blocks 8 sliding in channel section runner members 9 supported from the floor 2 at each side thereof by screws 10 and secured at their front ends to the lower ends of the respective pillars 3. The screws 10 extend through elongated apertures (not shown) extending transversely of the floor 2 thereby to permit lateral adjustment of the runner members 9. The pivotal connection of the door to the slide block is made by brackets 11 secured to the inner face of the door and pivoted on the slide blocks by pivot pins 12.

30 The door can thus be swung downwardly about the pivot pins 12 to the open position and then stowed away under the oven by sliding the blocks 8 rearwardly along the runner members 9. Leaf springs 13 are provided at the rear end of the runner members for engaging the blocks 8 thereby releasably to retain the door in its fully stowed away, open position. At the forward end of each runner member and concealed within the lower end of the respective pillar 3, there is provided a spring loaded catch (not shown) which is engaged by the slide block when in the forward (door closed) position and which serves to urge the slide block rearwardly during the initial opening movement of the door.

50 In order to provide additional support for the door during the opening and closing movement and to effect concurrent swinging and sliding movement of the door, the door is supported from the oven structure by means of a pair of links 14 positioned one at each side of the oven and pivoted at one end as at 15 to a link bracket 16 secured to the inner face of the corresponding door frame side member intermediate the length thereof, and at the other end as at 17 on the corresponding side wall of the oven.

60 The links 14 are cranked as shown in the drawing and the relative disposition of the pivots 15 and 17 is made such that upon opening or closing movement of the door, the pivot 15 is caused to move along an arcuate path indicated at 18 thereby to cause sliding movement of the blocks 8

concurrently with the swinging movement of the door. The said other end of each link 14 is formed to provide an abutment 19 which engages the inner face of the door as it approaches the fully closed position thereby to hold the door slightly forwards at the lower edge, so that when the upper edge of the door is firmly engaged against the upper edge of the oven opening, the lower edge of the door is spaced slightly from the lower edge of the oven opening to provide a small air gap which allows ingress of air along the bottom of the opening to assist the heating of the oven and the cooking of food contained therein.

80 The door is provided at its upper end with a handle member 20 and at the upper end of each pillar 3 there is provided a spring loaded ball catch (not shown) which engages the door in known manner to retain the door in the closed position.

The door structure can readily be dismantled by releasing the fixing of the pillars 3 to the side walls, removing the screws 10, and releasing the pivots 15, whereupon the door together with the pillars 3 and the runner members 9 can be withdrawn bodily from the oven.

#### WHAT WE CLAIM IS:—

1. A drop-down door construction for a cooking oven comprising a door frame, means hingedly supporting the lower end of the door frame and slidable rearwardly and forwardly beneath the oven, and additional means supporting the door frame from the oven structure in such manner that opening or closing of the door is effected by concurrent swinging and sliding movement of the door.

2. A door construction according to claim 1 wherein said additional supporting means comprises a pivoted link at one side of the oven and connecting the door frame to the oven structure.

3. A door construction according to claim 1 wherein the lower end of the door frame is pivoted at each side thereof to a slide block slidably supported in a runner member extending along the respective side of the oven floor and the door frame is further connected to the oven structure by a pair of links positioned one at each side of the oven, each link being pivoted at one end to the corresponding door frame side member intermediate the length thereof and at the other end to the corresponding side wall of the oven structure, the shape of the links and the relative positioning of their pivotal connection to the door frame and to the oven structure being such that upon opening or closing movement of the door the slide blocks are caused to move rearwardly or forwardly along the runner members concurrently with downward or upward swinging movement of the door.

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4. A door construction according to claim 3 wherein the said other end of each link is formed to provide an abutment which engages the door frame as the door approaches the closed position to cause the lower edge of the door to be spaced slightly from the lower edge of the oven opening when the door is in the closed position.
5. A drop down door construction for a cooking oven substantially as hereinbefore described with reference to the drawings accompanying the provisional Specification.

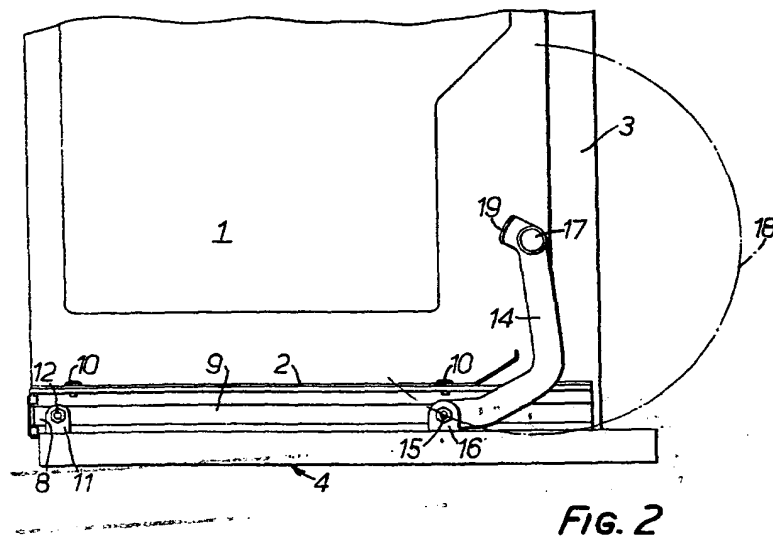
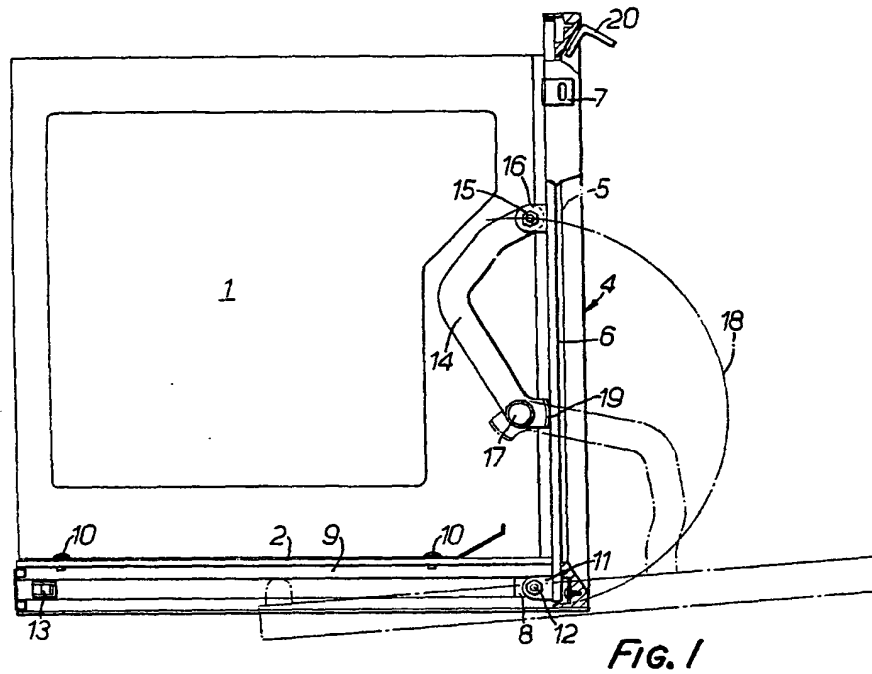
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1 SHEET

PROVISIONAL SPECIFICATION

This drawing is a reproduction of the Original on a reduced scale.



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